

Thank you for purchasing an Evenheat Ceramic Kiln. At Evenheat we like tools that work and work well. Not just in the tools we use but in the tools we make. Quality doesn't just happen. It takes an understanding of what you want and how to accomplish it. It takes a good eye, patience and ability. In other words: craftsmanship. We understand this and it's how we build.

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## SAFETY

Read and understand this installation and operating manual as well as the controls manual before operating your kiln. If you have any questions please contact Evenheat Kiln at 989-856-2281 or at evenheat-kiln.com.

Kilns are as safe as any other electrical appliance when used under normal and proper operating conditions. To create and maintain this safe environment observe all safety precautions.

### Warning Symbol Descriptions

Warning symbols are used throughout this manual. These symbols alert the operator to certain hazards and important information. Pictured below are symbols used along with a description of each.



The Exclamation Point alerts you to particular cautions, hazards and information.



The Lightning Bolt alerts you to specific information regarding the risk of electric shock. Electric shock may result in injury or death.



The Heat Waves alert you to specific information regarding the risk of burn injury.

### Emergency Shut Off Provision



The kilns power supply connection (plug/receptacle, breaker or disconnect) acts as the emergency electrical power shut off. Access to these devices should be unobstructed and safe at all times.

All electrical installations for direct wired models (those without a plug/receptacle connection) must include a power disconnect near the kiln and that is easily accessible and safe for emergency power shutoff.

### Electrical Safety



A licensed electrician should be used for all electrical installation and service. All applicable local, state and federal electrical codes must be followed.

Use correct voltage, wire size and fuse or breakers. Kiln electrical requirements are located on the kiln nameplate. Make sure all electrical connections are tight. Avoid using aluminum wire.

Always use the proper electrical receptacle. Never alter the kiln cordset or cordset plug. Alterations can be dangerous. Alterations will void any warranties along with nullifying any Listing Agency markings.



Models RM2 810, HF 810, 810, RM2 1210 and 1210 must use "Fully Rated" 20A circuit breakers.



Evenheat recommends that a voltage check be performed before placing the kiln into service, ideally before actual purchase. Operating voltage varies, with common operating voltages being 208V and 240V. The kilns operating voltage (printed on the kilns nameplate) must match the applied voltage (actual electrical service voltage). If it does not, do not install or operate the kiln as potential electrical and fire hazards exist. Contact Evenheat for guidance in such cases.

The kiln must be properly grounded.



Unplug or disconnect the kiln from the electrical service before accessing the chamber, servicing or vacuuming. Do not attempt to touch or replace the heating elements while the kiln is plugged in or connected to the electrical service. Electric shock may result in injury or death.

Never, ever use an extension cord to operate a kiln.

## Kiln Location Safety

The best location for the kiln is a concrete floor. If not available, the kiln must be placed on a minimum of 2" of masonry extending at least 12" beyond the outside perimeter of the kiln.



Do not place or use kiln on combustible surface.

Place only on the metal stand provided by Evenheat Kiln, Inc.

The surface on which the kiln is placed shall be capable of safely supporting the combined weight of the kiln, kiln load and any operating personnel.

Observe all building, fire and safety codes when installing the kiln.

Do not install the kiln closer than 12" (31cm) from combustible wall surface or object.

Install in a covered, well ventilated area.

Never place the kiln in a small, enclosed area such as a closet, cabinet or very small room. The room in which the kiln is placed into service shall be capable of safely dissipating all heat produced by the kiln.

Do not place the oven in any structure resembling a carport or screened in porch. Avoid areas that are subject to outdoors weather.

Never install a kiln outside. Avoid moisture.

It is the user's responsibility to be knowledgeable regarding any and all contaminants, produced by the ware during firing, and take steps to properly and legally contain and dispose of these contaminants.

It is the user's responsibility to provide ventilation capable of removing all gases, fumes and other airborne contaminants produced by the ware during firing safely from work the area and building structure.



Do not store flammable or combustible products near or in the same room the kiln such as gasoline, paint, aerosol cans, paper, curtains, plastics, etc. Better yet, store these items in another separate structure designed for this purpose.

Position the power supply cables, power supply conduit, controller cables, pyrometer thermocouple leads and other materials in such a way as not to create a tripping hazard around the kiln.

The area around the kiln should be free of obstructions that interfere with the proper and safe operation of the kiln.

Never place anything under or above the kiln for storage. Absolutely nothing should be propped against the kiln.

## Kiln Use Safety



The surface of the kiln is hot and burn injuries are possible. Keep all children and unsupervised personnel away. Always wear protective clothing, gloves and eyewear when operating and handling a hot kiln.



Do not insert any object or access the kiln chamber with any part of your body without first disconnecting the kiln from the power supply and chamber temperature is below 135°F (57°C). Electrical shock or burns may result in injury or death.

Protective clothing should be worn when operating the kiln and includes, but is not limited to, cotton clothing, heat resistant gloves and eyewear capable of filtering Infrared and Ultraviolet light.



Use care when looking into a hot kiln, this includes looking through a cracked lid or peepholes. High heat escapes quickly and burn injury may result. When looking into a hot kiln approach slowly and wear protective eyewear capable of filtering Infrared and Ultraviolet light.

Do not operate the kiln over the maximum temperature rating printed on the nameplate.

Never fire a kiln unattended beyond its anticipated firing time.

Never allow the power cord to touch the kiln. If the cord, plug or receptacle become damaged discontinue use and replace immediately.

Be sure that kilns' Lid Security Bar is secured before releasing the lid. The hardware used for this lid security bar should be inspected periodically for damage and wear.

It is recommended that a fire extinguisher, capable of dousing an electrical fire, be accessible in the event of fire. Smoke detectors within the kiln room are also recommended.

Keep the lid or door of the kiln closed when not in use.



It is the user's responsibility to have knowledge of the material intended to be fired. If you are unsure as to the safety of firing a particular material contact your materials supplier for guidance. If you remain unsure as to the safety of firing a particular material do not do it. Firing hazards include materials that melt, explode or produce toxic gases. Finished ware hazards include glazes containing lead. Glazes containing lead should not be used for ceramic articles intended for food use.

Fire all ware according to the material manufacturer's instructions. Improper firing may result in damage to the kiln or ware.

Do not use the kiln to prepare food, heat a living space, dry clothes or ice laden articles or use as a storage devise. The kiln is designed for one purpose and one purpose only: the firing of ceramic materials.

All kiln models not equipped with an automatic shutoff devise (electronic control or kiln sitter) must not be allowed to exceed the rated operating temperature indicated on the kiln nametag. To prevent kiln from exceeding this maximum temperature disconnect it from the electrical power supply.

A kiln will remain very hot long after the firing is complete. All safety recommendations should be followed, even with the kiln unpowered, to avoid any burn injuries. Keep children and other unauthorized personnel away.

#### **Kiln Maintenance Safety**



Disconnect electrical power from the kiln before performing any kiln maintenance. Failure to disconnect electrical power supply may result in electrical shock which can cause serious injury or death.

Replace any worn, damaged or defective parts immediately with Evenheat Kiln replacement parts only. Discontinue use until parts are replaced.



When vacuuming the kiln use only HEPA filters on the vacuum. Prolonged expose to brick dust and other refractory materials can cause lung injury.

Inspect all electrical service connections periodically for wear.

Periodically check lid band and jacket clamps for tightness. Tighten as necessary.

## Kiln Structural Features

### Dyna-Lift Lid Lift Assist

Evenheat is proud to offer our patented Dyna-Lift lid lift assist for our large kilns.

The Dyna-Lift lightens the force needed to operate the kiln lid. Hallmarks of the design include no kiln body connection, single point lifting and emphasis on allowing the lid to act naturally. The Dyna-Lift is stock equipped on all 23" and larger diameter High Fire and DeLuxe 10 models and is available as an option on all 23" and larger diameter RM and Classic Series kilns.

### Lid Security Bar

Evenheat kilns are supplied with a Lid Security Bar. This device positively holds the lid in the open position for safe operation.

### Lid Vent

Most of our ceramic kilns are equipped with a lid vent. This lid vent allows you to vent the chamber during the firing process.

### Maintenance Line

Our deep chambered models feature a "Maintenance Line". The Maintenance Line is a split in the jacket that allows these kilns to be partially disassembled for ease in element replacement and kiln installation. The Maintenance Line is held securely in place through the use of stainless steel plates and screws. Simply remove the screws and separate the sections for maintenance or installation.

### Peephole Covers

Evenheat uses a special metal peephole cover that is permanently attached to the kiln. Unlike peephole plugs, these covers will not get lost and they don't break.

### Wonderful Handles

At Evenheat, we love handles! Our lid and door handles are designed for easy, full gloved use.

### Insulating Materials

Premium insulating firebrick is used to make up the firing chamber, bottom and lid. The brick is porous (small air pockets and voids) and stores heat produced by the kilns heating elements.

The sidewall and lid are specially routed to retain the heating elements without the use of metal pins. This special routing prevents the elements from pulling, drooping or sagging.

### Full Stainless Steel Jacket

Our kiln designs include stainless steel jackets. Stainless steel is chosen for its corrosion resistance and its production qualities. Most of our designs (shallow depth) include a full jacket as opposed to a sectional design. Full stainless jackets offer superior build quality and life extending performance.

### Kiln Stand

Our kiln stands properly distribute the weight of the kiln and prevent tipping or offsetting. Your kiln should only be placed on the Evenheat stand provided with your kiln.



## Kiln Control Features

### Bartlett Controls

Our electronic controls are built exclusively for us by Bartlett Instrument Co. in Fort Madison, Iowa. Bartlett controls have a well deserved reputation for build quality, performance and consistency. Evenheat has used Bartlett controls since the late 1990's and we have never regretted the choice. There is none better.

### Thermocouples

Electronically controlled kilns use a temperature sensor called a thermocouple. The tip of thermocouple is inserted into the kiln chamber and is exposed directly to the heat within the kiln. Your kiln may contain up to 3 thermocouples.

Our standard thermocouple is a "Type K". There are many "Types" of thermocouples so care must be taken when replacing. Use of any other type of thermocouple than a Type K with our controls will produce unreliable results. It is highly recommended that Evenheat Factory Parts thermocouples be used for any and all replacements.

### Multi-Zone Control

Evenheat's exclusive use of the Bartlett line of controls for all High Fire models allows the use of multi-zone control. Multi-zone control uses a number of thermocouples (temperature sensors) to develop and maintain an equal temperature throughout the firing chamber. Multi-zone provides accurate and predictable results regardless of load volume.

### Control Panel

The control panel contains all electrical and electronic components used to operate the kiln.

This panel is powder coated for durability and is separated from the kiln body by a heatshield. This shield lowers the temperatures seen at the components thereby extending the life of these components.



### Control Power Switch

Set-Pro and Rampmaster II kiln models are equipped with a control power switch located on the kilns control panel. This switch simply applies power to the electronic controls.

The control power switch does not remove electrical power from the heating elements. When accessing the kiln chamber for any reason, disconnect electrical power from the kiln by unplugging the kiln or throwing breakers or disconnects to their OFF position.

### Control Fuse

Set-Pro and Rampmaster II kiln models are equipped with a control fuse located on the kilns control panel. This control fuse protects the electronic controls. Replacement fuses should be rated at 1/4A (250mA), 250V. "Slow-Blo" replacements are acceptable.

The control fuse does not remove electrical power from the heating elements. When accessing the kiln chamber for any reason, disconnect electrical power from the kiln by unplugging the kiln or throwing breakers or disconnects to their OFF position.

### Kanthal/Sandvik Heating Elements

The heating elements are coils of wire that produce heat inside the kiln. They are made from the highest quality Kanthal/Sandvik high temperature wire available. We use both standard A-1 and high fire APM alloys.

## Kiln Setup

### Unpacking Your Kiln

Your Evenheat Kiln has been securely packed to survive the rigors of shipment. The packing materials consist largely of paper and wood products which are readily recyclable.

Remove all cardboard, wooden pallets and other protective packing and dispose of properly. Do not store these packing materials near the kiln. If transport at a later date is expected store packing materials in a dry place away from the kiln.

### Electrical Service and Requirements

Electrical requirements for your kiln depend upon its voltage and amperage. All electrical data, necessary for selecting the proper electrical service for your kiln, is included on the kiln nameplate and can also be found on our web site at [www.evenheat-kiln.com](http://www.evenheat-kiln.com) and product literature. Electrical service installation should be performed by a licensed electrical contractor only. All electric codes must be followed.



Evenheat recommends that a voltage check be performed before placing the kiln into service, ideally before actual purchase. Operating voltage varies, with common operating voltages being 208V and 240V. The kilns operating voltage must match the applied voltage (actual electrical service voltage). If it does not, do not install or operate the kiln as potential electrical and fire hazards exist. Contact Evenheat for guidance in such cases.

The electrical service for the kiln (receptacle or hardwired disconnect) should be positioned in such a way as to offer a strain-free connection. The kiln should be positioned in such a way that the electrical service connection is located on the same side as the kilns power cable or conduit. The kilns power cable or conduit should easily reach the connection without making contact with the kiln.



The plug/receptacle or disconnect (in the case of hardwired kilns) serves as the emergency power disconnect. These devices should be positioned in such a way as to allow unobstructed and easy access to these devices.



Kiln models consuming 18A at 120V require the use of a "Fully Rated" 20A breaker.

### Kiln Location Requirements

Operating personnel should have adequate space around the kiln for loading, unloading, operational and emergency shutoff procedures.

The floor beneath the kiln shall be constructed of a non-combustible, fireproof material. Concrete is best. If concrete is unavailable then the kiln shall be placed on a minimum of 2" of masonry extending at least 12" beyond the outside perimeter of the kiln.

The floor beneath the kiln shall be constructed in such a way as to safely support the full weight of the kiln, expected load and operating personnel.

The location area shall consist of walls and ceiling(s). Do not install the kiln in a location that is outside or in a location that is subject to the effects of the outside environment.

The walls and ceilings surrounding the kiln shall be constructed of a non-combustible, fireproof material.



A minimum of 12" (31cm) shall be allowed between all surfaces of the kiln and the surrounding walls and ceilings. This minimum shall be maintained with all movable features of the kiln (lids, doors, etc.) in both the fully opened and fully closed positions as well as during their travel paths.

The room in which the kiln is located shall be kept free of all flammable and combustible materials. This includes, but is not limited to, paper, solvents, shelving, boxes, curtains, fuels, etc. Storage of these materials shall not be located in the room in which the kiln is located.



The room in which the kiln is located shall be well ventilated to prevent the build-up of heat and to provide for a means of removing any gases or solids released during the firing process. Materials used in the firing process (clays, glazes, frits, etc.) may release gases and solids during the process, some of which may be harmful or toxic. Consult with the manufacturers of these products for detailed information regarding proper and legal ventilation and handling techniques of these products.

The room in which the kiln is located shall be of adequate size for the purposes of ventilation, spacing, servicing and loading operations. Do not locate the kiln in a small enclosed area or closet.

Because the surfaces of the kiln will get hot, avoid placing the kiln in a high traffic or work area. Also avoid areas that are accessible to children.



### Stand Assembly

Evenheat provides a stand for all of its kilns. In some cases the stand is secured to the kiln, in others, it must be assembled. Use only the stand provided by Evenheat to support your kiln.

Your ceramic kiln manuals package includes stand assembly instructions in both the printed and electronic form. Please refer to these stand assembly instructions for proper stand assembly.

Once the stand is assembled, place the stand in the determined location and place the kiln on the stand, taking care to center the kiln on the stand.



*Make sure your stand is level. Thin pieces of metal, under the feet, may be used as shims.*

### Kiln Installation

Kiln location is very important in terms of safety and ease of access.

The kiln should be positioned on a non-combustible surface capable of safely supporting the weight of the kiln, ware and operating personnel.

The kiln should be positioned in such a way as to provide for at least 12" (31cm) clearance between the outer kiln jacket and movable features like doors to the surrounding walls. Surrounding walls should be constructed of a non-combustible material. There should also be at least 24" between the highest point of the lid, when in the open position and the ceiling.

The area surround the kiln should be free of clutter or other movement-limiting material. The goal is to provide unobstructed access to the kiln for loading, unloading, programming, maintenance operations and emergency stop needs.

The power supply plug or power supply disconnect should be placed in such a way as to provide instant and unobstructed access for emergency power disconnect purposes.

### After Kiln Installation

Double check distances from the kilns exterior to the surrounding walls to verify at least a 12" (31cm) clearance. Reposition if necessary to achieve this minimum distance.

Also double check kiln access. Is it unobstructed? Can the lid or door be operated easily and without obstruction? Is the plug/receptacle or disconnect, needed for emergency disconnect, easily and safely accessible? If the answer is no on any of these questions, reposition the kiln as needed.





### Partial Kiln Disassembly for Installation or Re-installation

Our large kilns are designed with to be partially disassembled and reassembled for easier installation or re-installation. These models are sectional in design which allows the kiln chamber sections to be taken apart and moved to the kiln location separately.

Step 1 – Remove power from the kiln by unplugging it or disconnecting the hard wire connection.



Step 2 – Remove the fasteners that secure the red control panel to the stainless steel jacket. Use a 1/4" tool to remove these fasteners.

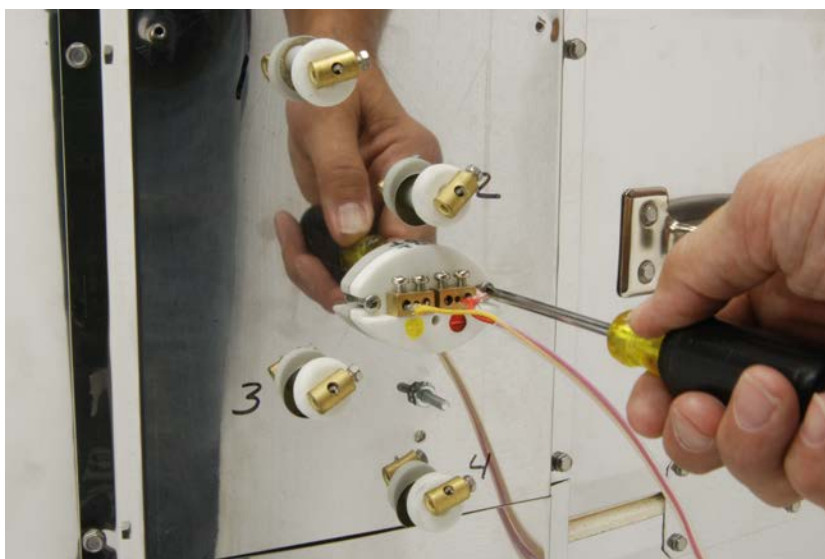


Step 3 - Disconnect the element lead wires (wires connecting the control panel to the heating elements) from the heating elements. We recommend grasping the brass element connector with a pair of pliers or channel locks and removing the set screw to free the wires. Use a 1/4" tool to remove these screws.

*You will note that the element lead wires are marked with numbers as are the heating element end locations themselves. This is provided to assist in reconnecting these wires. Earlier models may not have numbered element leads. In this case, temporarily number them with the help of masking tape. Remove any masking tape prior to reassembly.*

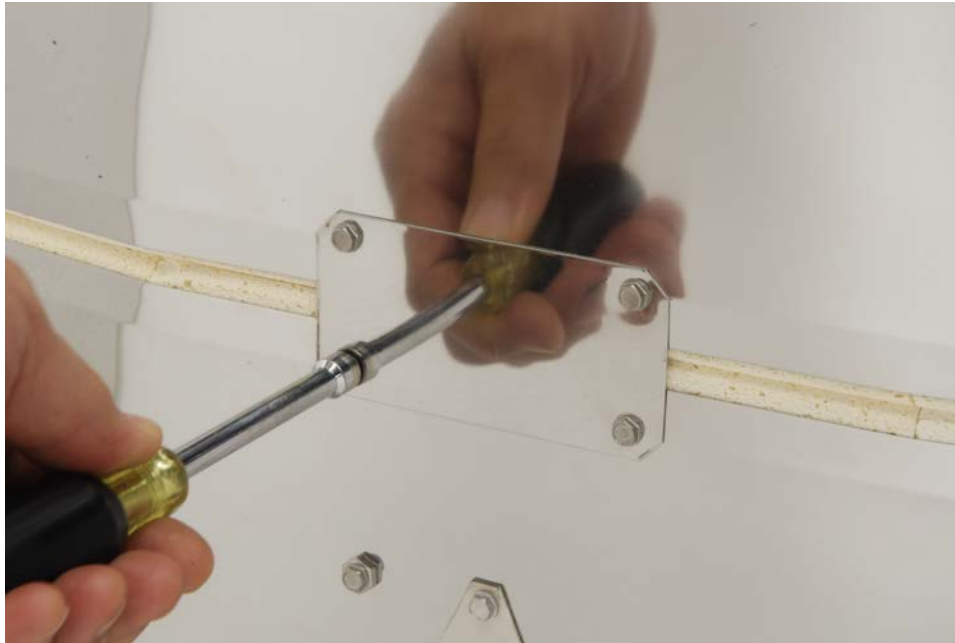


Step 4 – Disconnect the green ground wire connecting the control panel to the kiln, at the kiln. Use an 11/32" tool to remove the fastener.



Step 5 – Remove the thermocouple terminal block(s) retaining screws using a Phillips screwdriver and pull the thermocouple(s) out of the kiln. For multi-zone designed kilns thermocouples are marked to indicate position for reassembly. The control panel is now free of the kiln.

*Some Evenheat designs use a single heatshield (stainless steel devise that the red control panel attaches to). In these cases it is also necessary to remove this heatshield to separate the sections. Use a 1/4" tool to remove fasteners.*



Step 6 – Remove the stainless steel plates that hold the sections together using a 1/4" tool. The sections are now free of each other and may be moved separately.

Step 7 – Once the separate sections are moved and placed in the new location, reverse the preceding process for reassembly.

Double check distances from the kilns exterior to the surrounding walls to verify at least a 12" (31cm) clearance. Reposition if necessary to achieve this minimum distance.

Also double check kiln access. Is it unobstructed? Can the lid or door be operated easily and without obstruction? Is the plug/receptacle or disconnect, needed for emergency disconnect, easily and safely accessible? If the answer is no on any of these questions, reposition the kiln as needed.

### Preparing the Peephole Covers

The peephole cover(s) installed on your kiln were fastened down for shipping purposes and must be loosened before use.

Using a ¼" tool, loosen the screw holding the peephole cover(s) ¼ turn. The peephole covers should now freely swing open and closed.



Peepholes function as a port in which to view into the kiln. When opened hot gases from the firing will escape quickly creating a burn hazard. When using the peepholes wear gloves capable of high temperature use and approach slowly with your face. Also wear eye protection capable of filtering Infrared and Ultraviolet light.



## Firing Your Kiln

### Understanding Your Kiln Controls

Your kiln is equipped with control devise's that allow you to regulate the rate of heating (and cooling) as well as the final kiln temperature or cone. Evenheat manufactures a variety of models that use various control devises.

Operating instructions for these controls is supplied as a separate manual that is included in your manual packet.

### Electronic Controls Features

Our electronic controls are built exclusively for us by Bartlett Instrument Co. in Fort Madison, Iowa. Bartlett controls have a well deserved reputation for build quality, performance and consistency. Evenheat has used Bartlett controls since the late 1990's and we have never regretted the choice. There is none better.

#### Rampmaster II Control

The Rampmaster II is our full featured automatic temperature control for ceramic firing and features our Cone Fire Mode for easy and effortless ceramic programming. Simply choose your cone number and firing speed and the Rampmaster II automatically creates your ceramic firing program. It's quick, it's easy and accurate.

The Rampmaster II also allows the artist to develop up to 6 individual firing programs using Ramp Mode programming for full artistic control of all firing parameters. Each firing program offers up to 8 segments per program. You determine How Fast, to What Temp and for How Long. Program the perfect clay profile or that one-of-a-kind specialty glaze firing using the Ramp Mode Programming feature.

The Rampmaster II also contains a group of special features designed to enhance your firing experience including On-the-Fly options allowing you to skip ahead in the firing, temperature pause, settable alarm and useful programming features like delay starting and back-up keys.



Scan this QR code to view instructional programming videos for both the Evenheat Set-Pro and Rampmaster controls.

You will also find these instructional videos and manuals on our web site [www.evenheat-kiln.com](http://www.evenheat-kiln.com)

### Set-Pro Control

The Set-Pro is our economical 3 button control that allows the ceramic artist to fire using our quick and easy to use Express Mode. Simply choose your cone number and firing speed and the Rampmaster II automatically creates your ceramic firing program. It's quick, it's easy and accurate.

The Set-Pro also allows the artist to develop up to 4 individual firing programs using Custom programming for full artistic control of all firing parameters. Each firing program offers up to 8 segments per program. You determine How Fast, to What Temp and for How Long. Program the perfect clay profile or that one-of-a-kind specialty glaze firing using the Ramp Mode Programming feature.



Scan this QR code to view instructional programming videos for both the Evenheat Set-Pro and Rampmaster controls.

You will also find these instructional videos and manuals on our web site [www.evenheat-kiln.com](http://www.evenheat-kiln.com)

### Manual Controls

Evenheat continues to manufacture a range of manually controlled kilns. As the name suggests, these kilns are controlled manually through the use of switches.

During the firing, these switches are manually adjusted periodically to increase the chamber temperature until final temperature or cone is reached.

Generally speaking, manually operated kilns are operated as follows:

Kiln models equipped with ON-OFF toggle switches generally have two or more switches. Standard operation is to throw the bottom switch to the ON position while leaving all remaining switches OFF. Allow the kiln to fire for one hour. Once the hour is complete, throw the next switch up from the bottom to the ON position, again leaving all remaining switches OFF. Allow the kiln to continue to fire for another hour. Repeat this process for all remaining switches and allow the firing to complete.

*It should be noted that you may fire faster or slower by adjusting the amount of time you wait before throwing the switches to the ON position.*

Kiln Models equipped with Rotary Switches (Low-Med-High and Infinite) may contain up three switches. Standard operation is to rotate all switches to the Low setting and allow the kiln to fire for one hour. Once the hour is complete, rotate all switches to the Medium setting and allow the kiln to fire for another hour. Once that hour is complete rotate all switches to the High position and allow the firing to complete.

*It should be noted that you may fire faster or slower by adjusting the amount of time you wait before rotating the switches to the next highest position.*

If your particular kiln model is equipped with a Kiln Sitter, the Kiln Sitter will automatically turn the kiln off once cone is achieved.

If your particular kiln model is not equipped with a Kiln Sitter it must be turned off manually at the end of the firing. The use of "witness cones" and a pyrometer help to indicate when the proper cone and maximum kiln temperature have been reached. Do not allow the kiln to operate beyond the maximum temperature indicated on the nameplate.





### The Kiln Sitter

The Kiln Sitter is a mechanical device that automatically shuts the kiln off when the proper cone has been achieved. It is fitted on many of our manually controlled kilns.

The Kiln Sitter works in conjunction with a pyrometric cone designed especially for it. This pyrometric cone will deform after a particular amount of time and temperature (known as heatwork). It's this deforming process that is used to operate the Kiln Sitter.

A Kiln Sitter manual is included in your kilns manual packet. It describes setup, operation and calibration.



### First Time Firing (Pre Fire)

Evenheat suggests that you perform your first firing (Pre Fire) before committing to an actual firing.

There are many good reasons for a pre fire. It builds up an oxide coating on the heating elements which helps to protect them. It also drives off any excess moisture and loosens any remaining brick pieces for removal. The pre fire also allows you to become familiar with the operating procedures of the kiln and controller.

To conduct the pre fire program, be sure the kiln is empty. Close the lid or door and set your kiln to fire to a cone 01 (2046°F/1119°C).

For Set-Pro and Rampmaster equipped kilns refer to the included operating manuals.

For manually controlled kilns follow the instructions given previously and refer to the included Kiln Sitter manual (if so equipped).

During the pre fire you will notice a slight "clicking" sound on Set-Pro and Rampmaster equipped kilns. This sound is produced by the power relays as they turn on and off. You may also see and smell a light smoke coming from the firing chamber. This smoke is produced as lubricant (used in the winding off the heating elements) is burned off of the heating elements. This happens early in the pre fire and does not continue for long.

During the Pre Fire take the opportunity to monitor the kiln as it proceeds through the firing. Kilns equipped with electronic controls display chamber temperature along with other informative data. Watch how the kiln reacts to increasing temperature. Get a sense of the jacket temperature as the firing progresses (it gets hot). Get to know your kiln. As with all firings, monitor the complete Pre Fire operation.

### Loading the Kiln



Before loading or unloading the kiln all switches must be in the OFF position(s) and power to the kiln disconnected. Contact with heating elements or other electrically conductive components within the kiln can result in electrical shock causing injury or death.



Before loading or unloading the kiln the kiln should be cool, 135°F (57°C) or less to prevent burn injury.

For Kiln Sitter equipped kilns, place the proper cone in the Kiln Sitter tube assembly.

Begin by placing 3 to 4 posts on the kiln floor. These posts will support a shelf and it's best to use ½" to 1" for this purpose. These posts allow for proper air and heat circulation throughout the kiln and to help prevent serious damage and to the kiln floor in the case of an overfire.

Place a shelf on the floor posts, placing carefully to avoid contact with the kiln walls, thermocouple (temperature sensor) or Kiln Sitter tube assembly. Check for stability and reposition posts or add more posts if necessary.

Place your ware on bottom shelf. All ware that is placed in the kiln must be dry. Ware that is not completely dry may crack or explode causing damage to other ware, heating elements, firebrick or Kiln Sitter tube assembly. Slipcast greenware may be fired from several days to one week after pouring. Hand modeled pieces need more drying time, as much as a few weeks. Glazed pieces can typically be fired 6 hours after application. Consult with your materials supplier for guidance on proper drying time and procedures.

Most ceramic firings use multiple shelf layers separated by posts. To form additional shelf levels choose posts that are about ½" to 1" taller than any ware placed on the proceeding shelf. Use a minimum of 3 posts, with 4 being preferred. Once posts are placed, place in a shelf and check for stability and readjust or add more posts as necessary. Place your ware on the shelf.

*When placing posts, shelves and ware in the kiln place them at least 1" (more is better) away from thermocouple(s) and Kiln Sitter tube assemblies. These components respond to temperature and you'll want to give them room to operate. Kiln ware located too close to these components can negatively affect the response of these components. Give them room!*

Repeat loading procedure for all remaining shelf levels.

When loading is complete make sure that the lid or door will close without making contact with ware, posts or shelves. There should be at least 1" between all kiln ware and the lid or door.

The kiln is now loaded and ready to be fired.

### Firing the Kiln



Before firing the kiln check the kiln location from the aspect of safety. Is the kiln area clear of flammable and combustible material? Is there adequate distance between the kiln and walls and ceilings? Are any ventilation systems operating properly? Is there an unobstructed path to the plug/receptacle or disconnect for emergency electrical disconnect? These and other safety items should be checked. Please refer to the beginning of this manual for additional safety checks.

Is the kiln loaded and is the load stable? An unstable load can cause tipping and support failure during firing resulting in damaged ware and kiln.

For electronic controls refer to programming and operating instructions, included with your kiln packet, to begin the firing.

For manually controlled kilns follow the instructions in the "Manual Controls" section of this manual and the included Kiln Sitter manual (if so equipped).



The firing should be monitored periodically throughout the firing process to ensure the safety of personnel and kiln environment. If the firing becomes unsafe, for any reason, stop the firing immediately by disconnecting power from the kiln and respond appropriately to minimize safety risks or hazards.



You should be at the kiln at expected completion of firing to verify that the firing does complete and that the kiln shuts off accordingly. When the firing is complete disconnect the kiln from the power source. The kiln will remain very hot after being disconnected from the power supply. Keep children and unauthorized personnel away.

### Periods of Non-Use

When the kiln is not in actual use, the power supply should be disconnected and all lids and doors should be placed in the closed position.

Do not store anything on or around the oven at any time which also includes periods of non-use.



## Accessories

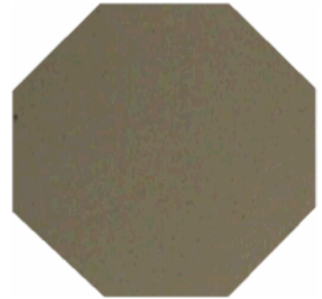
### Shelves

Shelves help you make the most use of the space inside your kiln. They are made of refractory material so they should be handled carefully. Shelves are supplied in both full or half sizes. Half shelves enable you to fire tall pieces on one side of the kiln and small pieces on the other side by using one or more half shelves. A good coat of kiln wash should always be maintained on top of the shelves.



### Posts

Posts are also made from refractory material and should be handled carefully. Posts range in sizes from ½" on up. They are used to support the shelves in your kiln at different heights depending on the height of the ware you're firing. Three posts usually allow you to level the shelf easier while some prefer four.



### Kiln Wash

Kiln wash is a protective coating used to prevent your ware from sticking to the firing surface. All shelves used for firing must be coated with this kiln wash. Kiln wash is normally supplied in a dry form and must be mixed with water before application.

Mix the kiln wash to desired consistency. Water to powder ratios are given on the kiln wash packaging. Use a soft brush to apply the wash to the surface of the shelf or mold. A smooth coating is generally the goal.

Many coatings will be needed to fully coat the shelf with reasonable drying times between coats. It is possible to hasten the drying process by loading the shelf or mold into the kiln and taking the temperature up to 400 to 500°F. Be sure that the shelf or mold is completely dry before using.

While it's possible that the kiln wash will remain on the shelf or mold after many firings it's always a good idea to inspect for wear and re-coat if necessary.



### Stilts

Stilts are metal or ceramic pronged supports used to raise glazed ware from the shelf or kiln bottom. This prevents the ware from adhering to the shelf or the bottom of the kiln. There are many sizes and shapes to choose from. Make sure your ware is well balanced on the stilts. Poorly balanced ware may fall and damage ware and the kiln.

## Pyrometer

A pyrometer is a meter used to measure temperature inside the kiln. A thermocouple (temperature sensor) is attached to the meter and the end is inserted 1" into the kiln for proper reading. It is a useful guide to show how fast the temperature is rising and when you're nearing your desired temperature. A pyrometer measures only temperature and should not be used as a substitute for a pyrometric cone.

## Pyrometric Cones

Ceramic ware is most often fired to a "Cone" as opposed to a temperature. Your ceramic ware provider can provide guidance on which cone to fire to for your specific ware.

Pyrometric cones are designed to deform at certain moments during a firing. This deforming action allows the kiln to shut off automatically at the proper point (as in the case of the mini bar and Kiln Sitter) or simply to record what happened during the firing (as in the case of the witness cone). The exact moment the cone deforms depends primarily upon two factors: time and temperature. The temperature present at the moment "cone" is achieved depends upon the rate of temperature increase. With this simple concept in mind it's easy to understand why "cone" and temperature are not the same thing. For a proper cone firing, time and temperature must always be considered.

## Pyrometric Cone Chart

*Please note that the Cone Chart gives 3 different temperatures for each cone number. As discussed above, the equivalent cone temperature depends upon how fast one gets to it. Generally speaking, the temperatures in the 108°F/Hour column are used when discussing ceramics, porcelain and china.*

Cone	Equivalent Cone Temperature at 27°F/Hour Heating Rate at End of Firing	Equivalent Cone Temperature at 108°F/Hour Heating Rate at End of Firing	Equivalent Cone Temperature at 270°F/Hour Heating Rate at End of Firing
022		1087°F - 586°C	1094°F - 590°C
021		1112°F - 600°C	1143°F - 617°C
020		1159°F - 626°C	1180°F - 638°C
019	1213°F - 656°C	1252°F - 678°C	1283°F - 695°C
018	1267°F - 686°C	1319°F - 715°C	1353°F - 734°C
017	1301°F - 705°C	1360°F - 738°C	1405°F - 763°C
016	1368°F - 742°C	1422°F - 772°C	1465°F - 796°C
015	1382°F - 750°C	1456°F - 791°C	1504°F - 818°C
014	1395°F - 757°C	1485°F - 807°C	1540°F - 838°C
013	1485°F - 807°C	1539°F - 837°C	1582°F - 861°C
012	1549°F - 843°C	1582°F - 861°C	1620°F - 882°C
011	1575°F - 857°C	1607°F - 875°C	1641°F - 894°C
010	1636°F - 891°C	1657°F - 903°C	1679°F - 915°C
09	1665°F - 907°C	1688°F - 920°C	1706°F - 930°C
08	1692°F - 922°C	1728°F - 942°C	1753°F - 956°C
07	1764°F - 962°C	1789°F - 976°C	1809°F - 987°C
06	1798°F - 981°C	1828°F - 998°C	1855°F - 1013°C
05-1/2	1839°F - 1004°C	1859°F - 1015°C	1877°F - 1025°C
05	1870°F - 1021°C	1888°F - 1031°C	1911°F - 1044°C
04	1915°F - 1046°C	1945°F - 1063°C	1971°F - 1077°C
03	1960°F - 1071°C	1987°F - 1086°C	2019°F - 1104°C
02	1972°F - 1078°C	2016°F - 1102°C	2052°F - 1122°C
01	1999°F - 1093°C	2046°F - 1119°C	2080°F - 1138°C
1	2028°F - 1109°C	2079°F - 1137°C	2109°F - 1154°C
2	2034°F - 1112°C	2088°F - 1142°C	2127°F - 1164°C
3	2039°F - 1115°C	2106°F - 1152°C	2138°F - 1170°C
4	2086°F - 1141°C	2124°F - 1162°C	2161°F - 1183°C
5	2118°F - 1159°C	2167°F - 1186°C	2205°F - 1207°C
5-1/2	2133°F - 1167°C	2197°F - 1203°C	2237°F - 1225°C
6	2165°F - 1185°C	2232°F - 1222°C	2269°F - 1243°C
7	2194°F - 1201°C	2262°F - 1239°C	2295°F - 1257°C
8	2212°F - 1211°C	2280°F - 1249°C	2320°F - 1271°C
9	2235°F - 1224°C	2300°F - 1260°C	2336°F - 1280°C
10	2284°F - 1251°C	2345°F - 1285°C	2381°F - 1305°C

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**EVENHEAT KILN, INC.  
LIMITED KILN WARRANTY**

Evenheat Kiln, Inc. guarantees to the original purchaser that for a period of two full years (one year for Evolution Series fiber lids) from the date of purchase the kiln will be free of defects in workmanship and materials when used under normal and proper operating conditions. Evenheat will replace or repair any defective part as specified..

**FOR THE WARRANTY TO BE EFFECTIVE THE PURCHASE MUST:**

- (1) Provide written proof of date of purchase. (Warranty card sent in at time of purchase.)
- (2) Notify the Evenheat Distributor/Dealer from whom the kiln was purchased, within 10 days after defect has been discovered.
- (3) Make kiln immediately available for inspection.

**FOR WARRANTY REPAIRS:**

- (1) Warranty repairs should be handled through the Distributor/Dealer from whom the kiln was purchased, who will arrange for any repairs or replacement of parts under the terms of this warranty upon receipt of the kiln (or defective part). Otherwise the defective part may be returned (postage prepaid) to Evenheat Kiln, Inc. P.O. Box 399 6949 Legion Drive Caseville, MI 48725. If, after factory examination, the original part is found to be defective, a new or repaired part will be shipped prepaid by Evenheat Kiln, Inc.
- (2) If the entire kiln is to be returned to the factory, all transportation costs will be borne but he purchaser. The purchaser should notify Evenheat Kiln, Inc. (989) 856-2281 prior to shipping. Evenheat will help advise the best shipping method and if it is necessary to return the entire kiln or only certain parts. Warranty work will be performed within 30 days after defective part is returned to the factory.
- (3) Evenheat Kiln, Inc. reserves the right, at its option, to replace the entire kiln or any part of it in order to fulfill its obligation under this warranty.

**THIS WARRANTY DOES NOT COVER:**

- (1) Freight damage, kilns altered in any way, abuse or neglect, moisture, improper storage or installation.
- (2) Kiln overfired (reaching temperature higher than melting point of ware inside kiln) regardless of cause.
- (3) Dawson Kiln Sitter or Limit Timer.
- (4) Kilns operated on incorrect voltage.
- (5) Improper electrical installation.
- (6) Kiln furniture or ware.
- (7) Kilns used for reduction or salt firing.
- (8) Kilns used for purposes other than the firing of glass materials.
- (9) Kilns operated in excess of the cone or temperature on the rating plate.
- (10) Damage to Property or personal injury that may occur from kilns that are fired on or near wood floors or combustibles.
- (11) Damage to property or personal injury that may occur from improper ventilation of the work area and building structure.

This warranty is in lieu of all other warranties, expressed, or implied.

Evenheat Kiln, Inc. neither assumes nor authorizes any Distributor/Dealer, Retailer or employee to assume for it any other obligations or liabilities in connection with Evenheat Kilns.

This warranty is limited as specified above and excludes incidental or consequential damages. Some states or providences do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.